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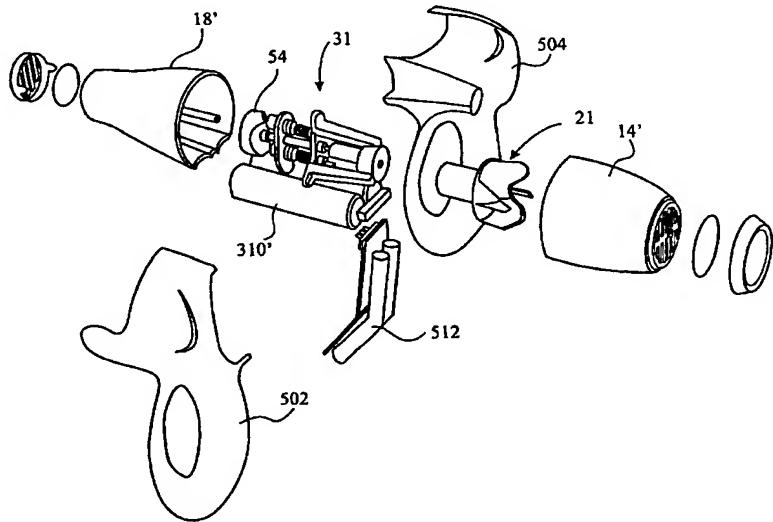
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(54) Title: HAIRDRYER



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(57) Abstract: A hairdryer (10) has a housing (12, 16, 18) defining an air passage (26) and a cartridge receptacle (516). A battery (308, 512) is adapted to power a motor (20) driving a fan (22). A manifold (570) connects two gas canisters (310), in a canister cartridge (310'), to a conduit (596) to provide combustible gas flow to the burner (34). Electronic control means pulses the solenoid (592) between on and off positions of the valve (586). The control means provides for at least three modes of operation - on, off and cool shot. The canisters and an end cap (526) keep them together. When the cartridge is inserted, couplings (534, 536) on the cap and body engage and the outlet valves of the canisters are opened by valve openers (58) in the manifold. The body comprises two cup elements (14', 18') and has a depending pistol-grip handle comprising two clamshells (502, 504).



Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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INTERNATIONAL SEARCH REPORT

National Application No
PCT/GB 03/05343

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A45D20/06 B25F5/02 F17C13/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 A45D B25F F17C F24H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 170 705 A (E. D BISHOP) 13 August 1986 (1986-08-13) page 2, line 4 - line 33; figure 2	1-3
Y		5,6
A		10
X	US 5 857 262 A (BONNEMA JAMES ET AL) 12 January 1999 (1999-01-12) abstract; figure 2	4,7,13
Y	column 6, line 6 - line 26 column 4, line 38 - column 5, line 7	5,6,8,10
Y	US 4 995 171 A (YOSHINAGA SADAO ET AL) 26 February 1991 (1991-02-26) abstract; figure 3 column 4, line 24 - line 44	8
		-/-

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the International filing date
- *L* document which may throw doubts on priority, claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the International filing date but later than the priority date claimed

- *T* later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *V* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- *&* document member of the same patent family

Date of the actual completion of the International search

10 September 2004

Date of mailing of the International search report

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INTERNATIONAL SEARCH REPORT

! International Application No
GB 03/05343

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	WO 03/047387 A (SUNDERLAND JOSEPH WILLIAM ;COLLIER NICHOLAS (GB); SUNDERLAND BLACK) 12 June 2003 (2003-06-12) page 10, line 12 - line 22 page 11, line 16 - line 24; figures 3,4 page 13, line 1 - line 12; figure 6 -----	1-6,13
P, A	----- US 5 009 592 A (ROLDAN ANTOINE ET AL) 23 April 1991 (1991-04-23) column 4, line 37 - line 59; figures 1,6 -----	12,14
Y	FR 2 642 142 A (BUTAGAZ) 27 July 1990 (1990-07-27) A page 2, line 9 - line 38 page 4, line 1 - line 12 page 6, line 3 - line 36; figures 2,5 -----	9,10,21
A	US 4 711 988 A (YIP P C ET AL) 8 December 1987 (1987-12-08) column 2, line 54 - column 3, line 21; figure 1 -----	11
A	US 4 711 988 A (YIP P C ET AL) 8 December 1987 (1987-12-08) column 2, line 54 - column 3, line 21; figure 1 -----	1,2,5
A	GB 2 254 913 A (EDWARDS ANTHONY MICHAEL) 21 October 1992 (1992-10-21) page 2, last paragraph - page 3, paragraph 1; figure 1 -----	9,21
A	PATENT ABSTRACTS OF JAPAN vol. 1995, no. 08, 29 September 1995 (1995-09-29) & JP 7 116016 A (MATSUSHITA ELECTRIC WORKS LTD), 9 May 1995 (1995-05-09) abstract; figure 1 -----	12
A	US 5 155 925 A (CHOI WONCHOEL) 20 October 1992 (1992-10-20) abstract; figure 1 -----	12
A	US 3 161 322 A (STONE ARTHUR H) 15 December 1964 (1964-12-15) column 1, line 14 - column 19; figures 1,2 -----	21

INTERNATIONAL SEARCH REPORT

ational application No.
PCT/GB 03/05343

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.: because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

1-14, 21; 19 and 20 as far as dependent on 1-14

4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

The additional search fees were accompanied by the applicant's protest.
 No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International Application No. PCT/ GB 03/05343

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-8; 13 and 14 as far as dependent on 1-8

Hairdryer with control of the gas flow. Claim 4 is regarded as the broadest independent claim of this group.

2. claims: 9-14, 21; 19 and 20 as far as dependent on 9-14

Gas cartridge for a hairdryer. Claim 21 is regarded as the broadest independent claim of this group.

3. claims: 15-20

Housing for a handheld portable implement.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

GB 03/05343

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
GB 2170705	A	13-08-1986	NONE		
US 5857262	A	12-01-1999	AU	719588 B2	11-05-2000
			AU	5446698 A	10-06-1998
			CA	2273828 A1	28-05-1998
			DE	939877 T1	20-04-2000
			EP	0939877 A1	08-09-1999
			WO	9822750 A1	28-05-1998
US 4995171	A	26-02-1991	WO	8906095 A1	13-07-1989
			CA	1290939 C	22-10-1991
			DE	3889656 D1	23-06-1994
			DE	3889656 T2	29-09-1994
			EP	0347457 A1	27-12-1989
			KR	9501082 Y1	18-02-1995
WO 03047387	A	12-06-2003	CA	2468393 A1	12-06-2003
			EP	1450642 A2	01-09-2004
			WO	03047387 A2	12-06-2003
US 5009592	A	23-04-1991	FR	2638514 A1	04-05-1990
			AT	77876 T	15-07-1992
			DE	68901963 D1	06-08-1992
			DE	68901963 T2	18-02-1993
			EP	0367695 A1	09-05-1990
			JP	2247409 A	03-10-1990
FR 2642142	A	27-07-1990	FR	2642142 A1	27-07-1990
US 4711988	A	08-12-1987	NONE		
GB 2254913	A	21-10-1992	NONE		
JP 7116016	A	09-05-1995	NONE		
US 5155925	A	20-10-1992	NONE		
US 3161322	A	15-12-1964	NONE		